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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/852,987	05/10/2001	Mohan L. Sanduja	9011.1006	5857

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EXAMINER
BISSETT, MELANIE D

ART UNIT	PAPER NUMBER
1711	

DATE MAILED: 07/09/2003

12

Please find below and/or attached an Office communication concerning this application or proceeding.

	Application N .	Applicant(s)	
Office Action Summary	09/852,987	SANDUJA ET AL.	
	Examiner	**Art Unit**	
	Melanie D. Bissett	1711	

-- The MAILING DATE of this c mmunication appears n the cover sheet with the correspondence address --

Period f r Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *28 March 2003* .

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-13 and 34-56* is/are pending in the application.

4a) Of the above claim(s) *36* is/are withdrawn from consideration.

5)☒ Claim(s) *37-39 and 56* is/are allowed.

6)☒ Claim(s) *1-13,34,35,40,43,44 and 46-55* is/are rejected.

7)☒ Claim(s) *41,42 and 45* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11)☐ The proposed drawing correction filed on _____ is: a)☐ approved b)☐ disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12)☐ The oath or declaration is objected to by the Examiner.

Pri rity under 35 U.S.C. §§ 119 and 120

13)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____ .

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14)☒ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a) ☐ The translation of the foreign language provisional application has been received.

15)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ .
4) ☒ Interview Summary (PTO-413) Paper No(s). *11* .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: .

1. The rejections based on 35 USC 102 have been withdrawn based on the applicant's amendments. However, new rejections based on 35 USC 102 and 103 have been presented.

Election/Restrictions

2. Regarding claims 26-33 not cited in the restriction requirement, the examiner intended Group II to include claims 13-35. The examiner regrets this typographical error.

3. Upon reconsideration, the examiner will rejoin claims 34-35 and newly added claims 37-56 to keep the graft-coated substrate product claims together. The process claim 13 will also be rejoined because of the substantial overlap in coverage with the product-by-process claims.

4. However, the restriction of Group III, claim 36 is maintained for the reasons set forth in the previous Office action. The liquid grafting composition would have different terms of patentability than the graft-coated polyethylene substrate, as a search for the specific coated substrate does not reveal all pertinent art for the grafting composition.

5. This application contains a claim drawn to an invention nonelected with traverse in Paper No. 8. A complete reply to the final rejection must include cancelation of nonelected claims or other appropriate action (37 CFR 1.144) See MPEP § 821.01.

Claim Rejections - 35 USC § 102

6. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

7. Claim 13 is rejected under 35 U.S.C. 102(e) as being anticipated by Wang et al.

8. Wang discloses a method of coating a substrate with a composition which is grafted onto the substrate (abstract) to form catheters or tubes (col. 1 lines 9-20). Preferred substrates include polyethylene (col. 4 lines 37-44), and preferred coatings include polyurethanes and epoxy materials (col. 12 lines 16-27). The reference teaches the inclusion of metal salts to favor graft polymerization (col. 8 lines 9-29), peroxides (col. 8 line 64-col. 9 line 38), cross-linking agents to promote polymerization (col. 10 lines 35-44), and combinations of monomers and polymers (col. 12 lines 16-27). These materials fit the applicant's components of claim 13.

Claim Rejections - 35 USC § 103

9. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

10. Claims 1-2 and 6-12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Wyman et al. in view of Wolf.

11. From a prior Office action:

> 12. Wyman discloses a polymer film coated with polysilicone coating, where the coating is grafted onto the polymer film (abstract). The coatings have surface tensions well in excess of 60 dynes/cm (col. 2 lines 30-36). Low-density polyethylene is exemplified as a polymer film (example 1). Since the reference teaches the coating of polymer films, it is the examiner's position that the reference suggests the formation of curved or planar sheets.

13. Regarding claims 8-9, it is noted that the claims only further limit the pipe articles in claim 7. Since pipe articles have not been chosen in Wyman's invention, the further limitation of the pipe articles bears no patentable weight, and Wyman's reference anticipates the claims.

14. Wyman discloses a graft-coated substrate using materials preferred by the applicant. Since the coated substrate of Wyman's invention would be similar in structure to coated substrates of the applicant's claimed invention, it is the examiner's position that Wyman's coated substrate would inherently possess the applicant's claimed heat resistance properties.

27. Wyman applies as above to show coatings having surface tensions of at least 60 dynes/cm. Although the reference indicates surface tensions well in excess of 60 dynes/cm, the reference does not specifically show coatings having surface tensions of at least 80 dynes/cm. Since Wyman teaches that the increase in carboxylic acids present increases surface tension and improves wetting and adhesion characteristics, it is the examiner's position that it would have been prima facie obvious to vary the amount of carboxylic acid present in the coating to vary surface tension, thus optimizing wetting and adhesion properties of the coating.

12. Wyman applies as above, failing to mention the use of flame retardants. However, flame retardants are conventional plastics additives known to impart improvements in ignitability, combustion rate, heat release, fuel contribution, smoke evolution, and the formation of toxic gases (Wolf). Polyethylene is listed as a polymer benefiting from flame retardance. It is the examiner's position that it would have been prima facie obvious to include a flame retardant in the outer coating of Wyman's invention to prevent ignition, heat release, smoke evolution, and the formation of toxic gases during storage or heating the material, since the addition of such additives is well known in the art.

13. Claims 1-3 and 10-12 are rejected under 35 U.S.C. 103(a) as being anticipated unpatentable over Spenadel et al. in view of Wolf.

14. From a prior Office action:

15. Spenadel discloses a process for forming automotive body components by crosslinking a surface coating onto a substrate (abstract), where the substrate polymers include polyethylene

homopolymers and copolymers (col. 3 line 47-col. 4 line 27) and the surface coatings include pigmented acrylic, polyurethane, and epoxy coatings which graft onto the substrate (col. 5 lines 1-14). Substrates including low-density polyethylene are exemplified (example 1).

16. Spenadel discloses a graft-coated substrate using materials preferred by the applicant. Since the coated substrate of Spenadel's invention would be similar in structure to coated substrates of the applicant's claimed invention, it is the examiner's position that Spenadel's coated substrate would inherently possess the applicant's claimed heat resistance and surface energy properties.

15. Spenadel applies as above, failing to mention the use of flame retardants. However, flame retardants are conventional plastics additives known to impart improvements in ignitability, combustion rate, heat release, fuel contribution, smoke evolution, and the formation of toxic gases (Wolf). Polyethylene is listed as a polymer benefiting from flame retardance. It is the examiner's position that it would have been prima facie obvious to include a flame retardant in the outer coating of Spenadel's invention to prevent ignition, heat release, smoke evolution, and the formation of toxic gases during storage or heating the material, since the addition of such additives is well known in the art.

16. Claim 54 is rejected under 35 U.S.C. 103(a) as being unpatentable over Spenadel et al. in view of Wolf as applied to claims 1-3 and 10-12 above, and further in view of *Kirk-Othmer Encyclopedia of Chemical Technology*.

17. Spenadel and Wolf apply as above, noting the use of pigmented acrylate resins and also of forming decorative coatings (col. 3 lines 36-40) but failing to mention the specific use of aluminum particles. Kirk-Othmer teaches that aluminum particle pigments are widely used to give a metallic appearance (p. 693). Therefore, it is the examiner's position that it would have been prima facie obvious to use aluminum

particle pigments in the invention of Spenadel and Wolf to yield coated articles having a desired metallic appearance.

18. Claims 1 and 6-9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Fydelor et al. in view of Wolf.

19. From a prior Office action:

> 18. Fydelor discloses a surgical device comprising a polyolefin grafted with hydrophilic thermoplastic copolymer at the surface (abstract). Examples show acrylic polymers grafted onto a high or low density polyethylene substrate to form coated films (examples 1-2). The materials are used to form straight or curved tubes, as heart valves and patches, etc. (col. 2 lines 16-37). One skilled in the art would clearly envision the formation of single wall or multi-layered pipes from the mention of tubes and tube coverings.

20. Fydelor applies as above, failing to mention the use of flame retardants. However, flame retardants are conventional plastics additives known to impart improvements in ignitability, combustion rate, heat release, fuel contribution, smoke evolution, and the formation of toxic gases (Wolf). Polyethylene is listed as a polymer benefiting from flame retardance. It is the examiner's position that it would have been prima facie obvious to include a flame retardant in the outer coating of Fydelor's invention to prevent ignition, heat release, smoke evolution, and the formation of toxic gases during storage or heating the material, since the addition of such additives is well known in the art.

21. Claims 1 and 4-9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nguyen et al. as evidenced by CRC Press and in view of Wolf.

22. From a prior Office action:

20. Nguyen discloses the treatment of ultrahigh molecular weight, high strength polyolefins by coating the surface with a monomer solution and grafting the coating onto the polyolefin (abstract). The preferred polyolefin is polyethylene having a molecular weight of 150,000-5,000,000 (col. 2 lines 16-62). Since films and tapes are mentioned as materials of the invention (col. 1 lines 11-22), it is the examiner's position that the reference suggests the formation of curved or planar sheets. Although Nguyen does not mention the density of the polyethylenes used, CRC Press teaches that ultrahigh molecular weight polyethylene conventionally has a density of 0.93-0.94 g/cm^3. Thus, the materials of Nguyen's invention inherently possess the applicant's claimed density.

21. Regarding claims 8-9, it is noted that the claims only further limit the pipe articles in claim 7. Since pipe articles have not been chosen in Nguyen's invention, the further limitation of the pipe articles bears no patentable weight, and Nguyen's reference anticipates the claims.

23. Nguyen applies as above, failing to mention the use of flame retardants. However, flame retardants are conventional plastics additives known to impart improvements in ignitability, combustion rate, heat release, fuel contribution, smoke evolution, and the formation of toxic gases (Wolf). Polyethylene is listed as a polymer benefiting from flame retardance. It is the examiner's position that it would have been prima facie obvious to include a flame retardant in the outer coating of Nguyen's invention to prevent ignition, heat release, smoke evolution, and the formation of toxic gases during storage or heating the material, since the addition of such additives is well known in the art.

24. Claims 1-2, 7-12, 34-35, 40, 43-44, 46-53, and 55 are rejected under 35 U.S.C. 103(a) as being unpatentable over Wang et al. in view of Wolf.

25. From a prior Office action:

23. Wang discloses a method of coating a substrate with a composition which is grafted onto the substrate (abstract) to form catheters or tubes (col. 1 lines 9-20). Preferred substrates include polyethylene (col. 4 lines 37-44), and preferred coatings include polyurethanes and epoxy materials (col. 12 lines 16-27). Since the reference teaches the materials for tubing, it is the examiner's position that one of skill in the art would clearly envision the formation of single wall straight pipes.

24. Wang discloses a graft coated substrate using materials preferred by the applicant. The coated substrates are noted to have a different surface energy from the substrate (col. 5 lines 33-51), where the coatings are more hydrophilic than the substrate and would thus increase wetting of aqueous solutions. Since the coated substrate of Wang's invention would be similar in structure to coated substrates of the applicant's claimed invention, it is the examiner's position that Wang's coated substrate would inherently possess the applicant's claimed heat resistance and surface energy properties.

26. Additionally, the polyurethane or epoxy monomers are shown in the coating composition in an amount of 1-1.2% by weight, and peroxides are used in concentrations of 1-10% by weight (col. 12 lines 16-44). The reference notes the use of benzoyl peroxide, ketone peroxides, hyperperoxides, and hydrogen peroxide (col. 9 lines 12-38). Substrates are dipped into the coatings (col. 12 lines 16-44) and reacted at temperatures between about 20-100 °C, teaching curing the coatings at room temperature and at temperatures above 60 °C. Also, the reactions are taught to take place from 10 minutes to several hours or longer, suggesting curing times above 30 minutes.

27. Wang applies as above, failing to mention the use of flame retardants. However, flame retardants are conventional plastics additives known to impart improvements in ignitability, combustion rate, heat release, fuel contribution, smoke evolution, and the formation of toxic gases (Wolf). Polyethylene is listed as a polymer benefiting from flame retardance. It is the examiner's position that it would have been prima facie obvious to include a flame retardant in the outer coating of Wang's invention to prevent ignition, heat release, smoke evolution, and the formation of toxic gases during storage or heating the material, since the addition of such additives is well known in the art. Also, Wolf teaches that phosphorus-containing flame retardants including

polyphosphonates and halogenated phosphate esters have improved transparency (section 6.2 following Table 13). Exemplified organophosphorus flame retardants include dimethyl methylphosphonate (Table 13). Since Wang is concerned with transparent tubing materials, it is the examiner's position that it would have been prima facie obvious to use the exemplified organophosphorus flame retardants to prevent ignition without detrimental affects on transparency.

28. Regarding the pH of the coating, Wang teaches a benefit of the invention in that acidic or basic coatings may be provided on neutral substrates (col. 5 lines 12-21). This passage suggests that a coating of any given pH may be applied onto the neutral base. Since the base is neutral, it is the examiner's position that it would have been prima facie obvious to form a neutral coating on the base with the expectancy of at least equally improved adhesion to the substrate.

29. Claims 10-12 are rejected under 35 U.S.C. 103(a) as obvious over Nguyen et al. as evidenced by Wyman et al. and in view of Wolf.

30. From a prior Office action:

30. Nguyen teaches modifying the surface of polyethylene with a coating including unsaturated organic acids (col. 4 lines 5-11). Wyman shows that the modification of a hydrophobic substrate with acidic monomers yields a higher surface tension (col. 2 lines 20-51). Since Nguyen teaches the modification of polyethylene with acidic monomers, it is the examiner's position that a coated substrate by Nguyen's invention would inherently possess the applicant's claimed surface energy properties. Furthermore, because of the similarity of structure in Nguyen's invention and that of the applicant's claimed invention, it is the examiner's position that the coated substrate of Nguyen's invention would also inherently possess the applicant's claimed heat resistance properties.

31. Regardless, since Wyman shows the variation of surface tension with increased amounts of acidic monomer, it is the examiner's position that it would have been prima facie obvious to control

the amount of acidic monomer on Nguyen's substrate to optimize the surface energy of the substrate and improve wetting and adhesion.

31. Nguyen applies as above, failing to mention the use of flame retardants. However, flame retardants are conventional plastics additives known to impart improvements in ignitability, combustion rate, heat release, fuel contribution, smoke evolution, and the formation of toxic gases (Wolf). Polyethylene is listed as a polymer benefiting from flame retardance. It is the examiner's position that it would have been prima facie obvious to include a flame retardant in the outer coating of Nguyen's invention to prevent ignition, heat release, smoke evolution, and the formation of toxic gases during storage or heating the material, since the addition of such additives is well known in the art.

32. Claims 10-12 are rejected under 35 U.S.C. 103(a) as obvious over Fydelor et al. as evidenced by Wyman et al. and in view of Wolf.

34. Fydelor teaches modifying the surface of polyethylene with a coating including unsaturated organic acids (examples). Wyman shows that the modification of a hydrophobic substrate with acidic monomers yields a higher surface tension (col. 2 lines 20-51). Since Fydelor teaches the modification of polyethylene with acidic monomers, it is the examiner's position that a coated substrate by Fydelor's invention would inherently possess the applicant's claimed surface energy properties. Furthermore, because of the similarity of structure in Fydelor's invention and that of the applicant's claimed invention, it is the examiner's position that the coated substrate of Fydelor's invention would also inherently possess the applicant's claimed heat resistance properties.

35. Regardless, since Wyman shows the variation of surface tension with increased amounts of acidic monomer, it is the examiner's position that it would have been prima facie obvious to control the amount of acidic monomer on Fydelor's substrate to optimize the surface energy of the substrate and improve wetting and adhesion.

33. Fydelor applies as above, failing to mention the use of flame retardants. However, flame retardants are conventional plastics additives known to impart

improvements in ignitability, combustion rate, heat release, fuel contribution, smoke evolution, and the formation of toxic gases (Wolf). Polyethylene is listed as a polymer benefiting from flame retardance. It is the examiner's position that it would have been prima facie obvious to include a flame retardant in the outer coating of Fydelor's invention to prevent ignition, heat release, smoke evolution, and the formation of toxic gases during storage or heating the material, since the addition of such additives is well known in the art.

Allowable Subject Matter

34. Claims 37-39 and 56 are allowed.

35. Claims 41-42 and 45 objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

36. The following is a statement of reasons for the indication of allowable subject matter:

37. The closest prior art, Wang, teaches a composition which is grafted onto the substrate (abstract) to form catheters or tubes. Preferred substrates include polyethylene, and preferred coatings include polyurethanes and epoxy materials. The reference teaches the inclusion of metal salts to favor graft polymerization, peroxides, cross-linking agents to promote polymerization , and combinations of monomers and polymers. However, the reference does not teach the use of a metal ion graft initiator chosen from the claimed ions. Also, the reference does not teach the use of

crosslinking components chosen from the claimed crosslinkers. Therefore, it is the examiner's position that the applicant's graft coated substrate of claims 37-39, 41-42, 45, and 56 provides a novel and unobvious step over the prior art.

Response to Arguments

38. Applicant's arguments with respect to claims 1-13 have been considered but are moot in view of the new ground(s) of rejection.

39. Regarding item 12 of the previous Office action, the examiner wishes to clarify that claims 8 and 9 are interpreted to only limit the pipe articles of claim 7. In other words, if the limitations of claims 8 or 9 are read into claim 7, the Markush group would read "an article of manufacture selected from the group consisting of a pipe selected from the group consisting of straight pipe, bent pipe, …, and combinations thereof; or tube, a curved or planar sheet, a beam, a board, a rod or shaft, a container for solids or fluids, and combinations thereof." Thus, the further limiting of "the pipe" does not exclude articles in the form of tubes, curved or planar sheets, etc. A reference teaching a curved or planar sheet would therefore anticipate a claim which only further limits the pipe. If the applicant intends to limit the article to a specific type of pipe, language such as "wherein the ***article is a pipe*** selected from the group consisting of" should be used.

40. In response to the applicant's arguments that the references do not teach the use of flame retardants, the examiner has included a secondary reference teaching the conventionality of adding flame retardants to polymeric compositions. It is the examiner's position that it would have been obvious to one of ordinary skill in the art to

include flame retardants to polymeric compositions to improve the flame retardance properties of a given article.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Melanie D. Bissett whose telephone number is (703) 308-6539. The examiner can normally be reached on M-F 8-4:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, James Seidleck can be reached on (703) 308-2462. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 872-9310 for regular communications and (703) 872-9311 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0661.

mdb
July 1, 2003

James J. Seidleck
Supervisory Patent Examiner
Technology Center 1700